

# SEQUENCE LISTING

<110> Cahoon, Rebecca E.  
Klein, Theodore M.  
Odell, Joan T.  
Orozco, Emil M. Jr.

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<150> 60/078,735

<151> 1998 March 20

<150> PCT/US99/06047

<151> 1999 March 19

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| Ala | Leu | Gly | Arg | Asp | Lys | Leu | Gln | Leu | Leu | Gly | Val | Ala | Ser | Met | Leu |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
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| Ile | Lys | Thr | Phe | Leu | Arg | Arg | Phe | Ile | Arg | Ser | Ala | His | Glu | Asp | Lys |
|     |     |     |     | 165 |     |     |     |     | 170 |     |     |     |     | 175 |     |
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|     |     |     | 180 |     |     |     |     | 185 |     |     |     |     | 190 |     |     |
| Leu | Ser | Leu | Leu | Asp | Tyr | Gly | Cys | Leu | Arg | Phe | Leu | Pro | Ser | Val | Val |
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|     |     |     | 260 |     |     |     |     | 265 |     |     |     |     | 270 |     |     |
| Phe | Lys | Cys | Val | Ser | Leu | Ile | Leu | Val | Pro | Val | Val | Ile | Pro | Thr | Ser |
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Lys Ala Ala Arg Ser Gly Cys Val Arg Trp Ile Ile Lys Thr Thr Ala  
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 Asp Arg Phe Leu Ala Gln Arg Arg Val Asn Arg Glu His Ala Trp Gly  
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 100 105 110  
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Pro Ser Leu Leu Asp Leu Gln Ile Glu Gly Ala Lys Tyr Ile Phe Glu  
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Pro Arg Thr Ile Arg Arg Met Glu Leu Leu Val Leu Gly Val Leu Asp  
165 170 175

Trp Arg Leu Arg Ser Val Thr Pro Leu Cys Phe Leu Ala Phe Phe Ala  
180 185 190

Cys Lys Val Asp Ser Thr Gly Thr Phe Ile Arg Phe Leu Ile Ser Arg  
195 200 205

Ala Thr Glu Ile Ile Val Ser Asn Ile Gln Glu Ala Ser Phe Leu Ala  
210 215 220

Tyr Trp Pro Ser Cys Ile Ala Ala Ala Ala Ile Leu Thr Ala Ala Asn  
225 230 235 240

Glu Ile Pro Asn Trp Ser Val Val Lys Pro Glu Asn Ala Glu Ser Trp  
245 250 255

Cys Glu Gly Leu Arg Lys Glu Lys Val Ile Gly Cys Tyr Gln Leu Met  
260 265 270

Gln Glu Leu Val Ile Asn Asn Asn Gln Arg Lys Leu Pro Leu Leu Lys  
275 280 285

Val Leu Pro Gln Leu Arg Val Thr Thr Arg Thr Arg Met Arg Ser Ser  
290 295 300

Thr Val Ser Ser Phe Ser Ser Ser Ser Ser Thr Ser Phe Ser Leu Ser  
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35 40 45

Ser Arg Ser Leu Asp Ala Ser Ala Arg Glu Glu Ser Val Ala Trp Ile
50 55 60

Leu Lys Val Gln Ala Tyr Tyr Ala Phe Gln Pro Val Thr Ala Tyr Leu
65 70 75 80

Ser Val Asn Tyr Leu Asp Arg Phe Leu Asn Ser Arg Pro Leu Pro Pro
85 90 95

Lys Thr Asn Gly Trp Pro Leu Gln Leu Leu Ser Val Ala Cys Leu Ser
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Leu Ala Ala Lys Met Glu Glu Ser Leu Val Pro Ser Leu Leu Asp Leu
115 120 125

Gln Val Glu Gly Ala Lys Tyr Val Phe Glu Pro Lys Thr Ile Arg Arg
130 135 140

Met Glu Leu Leu Val Leu Gly Val Leu Asp Trp Arg Leu Arg Ser Val
145 150 155 160

Thr Pro Phe Ser Phe Leu Asp Phe Phe Ala Cys Lys Leu Asp Ser Thr
165 170 175

Gly Thr Phe Thr Gly Phe Leu Ile Ser Arg Ala Thr Gln Ile Ile Leu
180 185 190

Ser Asn Ile Gln Glu Ala Ser Phe Leu Ala Tyr Trp Pro Ser Cys Ile
195 200 205

Ala Ala Ala Ala Ile Leu His Ala Ala Asn Glu Ile Pro Asn Trp Ser
210 215 220

Leu Val Arg Pro Glu His Ala Glu Ser Trp Cys Glu Gly Leu Arg Lys
225 230 235 240

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Glu Lys Ile Ile Gly Cys Tyr Gln Leu Met Gln Glu Leu Val Ile Asp  
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Asn Asn Gln Arg Lys Pro Pro Lys Val Leu Pro Gln Leu Arg Val Thr  
260 265 270

Ile Ser Arg Pro Ile Met Arg Ser Ser Val Ser Ser Phe Leu Ala Ser  
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Ser Asp Asn Thr Tyr Thr Arg Glu Gln Ile Leu Arg Met Glu Lys Ala  
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<212> PRT  
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<400> 18  
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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Glu | Ala | Val | Gly | Arg | Arg | Ser | Gly | Arg | Ser | Pro | Gly | Tyr | Gly | Asp | Asp |  |
|     | 35  |     |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |  |
| Phe | Gly | Ala | Asp | Leu | Phe | Pro | Pro | Gln | Ser | Glu | Glu | Cys | Val | Ala | Gly |  |
|     | 50  |     |     |     |     | 55  |     |     |     | 60  |     |     |     |     |     |  |
| Leu | Val | Glu | Arg | Glu | Arg | Asp | His | Met | Pro | Gly | Pro | Cys | Tyr | Gly | Asp |  |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |  |
| Arg | Leu | Arg | Gly | Gly | Gly | Gly | Cys | Leu | Cys | Val | Arg | Arg | Glu | Ala | Val |  |
|     |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |  |
| Asp | Trp | Ile | Trp | Lys | Ala | Tyr | Thr | His | His | Arg | Phe | Arg | Pro | Leu | Thr |  |
|     |     | 100 |     |     |     |     |     | 105 |     |     |     |     | 110 |     |     |  |
| Ala | Tyr | Leu | Ala | Val | Asn | Tyr | Leu | Asp | Arg | Phe | Leu | Ser | Leu | Ser | Glu |  |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |  |
| Val | Pro | Asp | Cys | Lys | Asp | Trp | Met | Thr | Gln | Leu | Leu | Ala | Val | Ala | Cys |  |
|     | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |  |
| Val | Ser | Leu | Ala | Ala | Lys | Met | Glu | Glu | Thr | Ala | Val | Pro | Gln | Cys | Leu |  |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     | 160 |  |
| Asp | Leu | Gln | Glu | Val | Gly | Asp | Ala | Arg | Tyr | Val | Phe | Glu | Ala | Lys | Thr |  |
|     |     |     |     | 165 |     |     |     |     | 170 |     |     |     |     | 175 |     |  |
| Val | Gln | Arg | Met | Glu | Leu | Leu | Val | Leu | Thr | Thr | Leu | Asn | Trp | Arg | Met |  |
|     |     |     | 180 |     |     |     |     | 185 |     |     |     |     | 190 |     |     |  |
| His | Ala | Val | Thr | Pro | Phe | Ser | Tyr | Val | Asp | Tyr | Phe | Leu | Asn | Lys | Leu |  |
|     |     | 195 |     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |  |
| Asn | Asn | Gly | Gly | Ser | Thr | Ala | Pro | Arg | Ser | Cys | Trp | Leu | Leu | Gln | Ser |  |
|     | 210 |     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |  |
| Ala | Glu | Leu | Ile | Leu | Arg | Ala | Ala | Arg | Gly | Thr | Gly | Cys | Val | Gly | Phe |  |
| 225 |     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |  |
| Arg | Pro | Ser | Glu | Ile | Ala | Ala | Ala | Val | Ala | Ala | Ala | Val | Ala | Gly | Asp |  |
|     |     |     |     | 245 |     |     |     |     | 250 |     |     |     |     | 255 |     |  |
| Val | Asp | Asp | Ala | Asp | Gly | Val | Glu | Asn | Ala | Cys | Cys | Ala | His | Val | Asp |  |
|     |     |     | 260 |     |     |     |     | 265 |     |     |     |     | 270 |     |     |  |
| Lys | Glu | Arg | Val | Leu | Arg | Cys | Gln | Glu | Ala | Ile | Gly | Ser | Met | Ala | Ser |  |
|     |     | 275 |     |     |     |     | 280 |     |     |     |     | 285 |     |     |     |  |
| Ser | Ala | Ala | Ile | Asp | Asp | Ala | Thr | Val | Pro | Pro | Lys | Ser | Ala | Arg | Arg |  |
|     | 290 |     |     |     |     | 295 |     |     |     |     | 300 |     |     |     |     |  |
| Arg | Ser | Ser | Pro | Val | Pro | Val | Pro | Gln | Ser | Pro | Val | Gly | Val | Leu | Asp |  |
| 305 |     |     |     |     | 310 |     |     |     |     | 315 |     |     |     |     | 320 |  |
| Ala | Ala | Pro | Cys | Leu | Ser | Tyr | Arg | Ser | Glu | Glu | Ala | Ala | Thr | Ala | Thr |  |
|     |     |     |     | 325 |     |     |     |     | 330 |     |     |     |     | 335 |     |  |
| Ala | Thr | Ala | Thr | Ser | Ala | Ala | Ser | His | Gly | Ala | Pro | Gly | Ser | Ser | Ser |  |
|     |     |     | 340 |     |     |     |     | 345 |     |     |     |     | 350 |     |     |  |
| Ser | Ser | Ser | Thr | Ser | Pro | Val | Thr | Ser | Lys | Arg | Arg | Lys | Leu | Ala | Ser |  |
|     |     | 355 |     |     |     |     | 360 |     |     |     |     | 365 |     |     |     |  |
| Arg | Cys | Asp | Gly | Ser | Cys | Ser | Asp | Arg | Ser | Lys | Arg | Ala | Pro | Ala | Gln |  |
|     | 370 |     |     |     |     | 375 |     |     |     |     | 380 |     |     |     |     |  |

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 Met Phe Asp Glu Ala Lys Ile Gln Arg Met Glu Gln Met Val Leu Asn  
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 Ala Leu Glu Trp Arg Thr Arg Ser Val Thr Pro Leu Ala Phe Leu Gly  
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 35 40 45  
 Ser Thr Leu Lys Trp Arg Met Gln Ala Val Thr Ala Cys Ser Phe Ile  
 50 55 60  
 Asp Tyr Phe Leu Cys Lys Phe Asn Asp His Asp Thr Pro Ser Met Leu  
 65 70 75 80  
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 85 90 95  
 Asp Phe Leu Val Phe Arg His Ser Glu Ile Ala Gly Ser Val Ala Leu  
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 Pro Ser Phe Gly Glu His Lys Thr Ser Val Val Glu Met Ala Thr Thr  
 115 120 125

Asn Cys Lys Tyr Ile Asn Lys Gly Val Xaa Cys Asp Arg Lys Asp Pro  
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Asp Met Leu

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 <222> (576) .. (577)

<220>  
 <221> unsure  
 <222> (598)

<400> 23  
 aacagaattc ggcacgagcc gcggtcggct gggtttcacg cgccgcggcg cggctaggct 60  
 tctccgcgct caccgccgcg ctgcgcgcg cctacctcga ccgctgcttc ctccccgggg 120  
 gcgcgctccg gctcggcgac cagccctgga tggcgcgctt agccgcgcgc acctgcttcg 180  
 cgctcgccgc caaggtcgag gagacgcgcg tgccgcgcgt cctcgacctc cagctctacg 240  
 ccgccgctga cgccgcggat ccgtacgtat tcgaggccaa gacggtgcgc cggatggagc 300  
 tgctcgtgct ctccgcgctt ggggtggcga tgcacctgt caccgccttc tcctacctcc 360  
 agcccgctct cgccgacgct ggcacgcgcg tgcgtagctg cgagggcgct ctgctcgcg 420  
 tcatggccga ctggaggtgg cctcggcacc ggccttcggc gtggggccgc gccgcgttgc 480  
 tgatcacagc cgccgcgcgc gacggcggcg acggcgacgg cgacacggag ctccctggcg 540  
 tcatcaatgc ccccgaggac aagaccgcgc agtgtgccaa gatcatctcc gaggtgacgg 600  
 gcatgagctt cctcgccctgc gatgtcggcg tgagcgccgc aaataagcgt aagcacgcgg 660  
 cggcgagctt gtactcgccg ccgccgagcc cgagcggcgt gatcggcgcg ctgtcctgct 720  
 tcagctgcga gagctcgacg tccgccaccg ctatggctgc ggcggtcggc ccgtgggcgc 780  
 cgtcggcgct cgtgtccgtg tcgtcctctc cagagccacc aggtcgggcc cccaagcgcg 840

cagcggcggc gtcggcgctc gcgtcggcgt cagccgggggt cgcgccaccg gtccagggtcc 900  
 cgcacacagct acccccccgc gaggagagcc gcgacgcctg gccgtccacc tgcgccgcgt 960  
 gacgcaccgt gccggaaacg gtgcctatgg cgagaccgcc gttcgggtggc ggtggagaat 1020  
 ggagaacaag gagcatcatt ggctcgcgtc ggtgagcagg agaacgaact attttgccca 1080  
 ttgccgtgac agatggggggg tgttcactgc gtggagccgc gctgancaat ga 1132

<210> 24  
 <211> 318  
 <212> PRT  
 <213> Zea mays

<400> 24  
 Asn Ser Ala Arg Ala Ala Val Gly Trp Val Ser Arg Ala Ala Ala Arg  
 1 5 10 15  
 Leu Gly Phe Ser Ala Leu Thr Ala Ala Leu Ala Ala Ala Tyr Leu Asp  
 20 25 30  
 Arg Cys Phe Leu Pro Gly Gly Ala Leu Arg Leu Gly Asp Gln Pro Trp  
 35 40 45  
 Met Ala Arg Leu Ala Ala Val Thr Cys Phe Ala Leu Ala Ala Lys Val  
 50 55 60

Glu Glu Thr Arg Val Pro Pro Leu Leu Asp Leu Gln Leu Tyr Ala Ala  
 65 70 75 80  
 Ala Asp Ala Ala Asp Pro Tyr Val Phe Glu Ala Lys Thr Val Arg Arg  
 85 90 95  
 Met Glu Leu Leu Val Leu Ser Ala Leu Gly Trp Arg Met His Pro Val  
 100 105 110  
 Thr Pro Phe Ser Tyr Leu Gln Pro Val Leu Ala Asp Ala Ala Thr Arg  
 115 120 125  
 Leu Arg Ser Cys Glu Gly Val Leu Leu Ala Val Met Ala Asp Trp Arg  
 130 135 140  
 Trp Pro Arg His Arg Pro Ser Ala Trp Ala Ala Ala Ala Leu Leu Ile  
 145 150 155 160  
 Thr Ala Ala Ala Gly Asp Gly Gly Asp Gly Asp Gly Asp Thr Glu Leu  
 165 170 175  
 Leu Ala Leu Ile Asn Ala Pro Glu Asp Lys Thr Ala Glu Cys Ala Lys  
 180 185 190  
 Ile Ile Ser Glu Val Thr Gly Met Ser Phe Leu Ala Cys Asp Val Gly  
 195 200 205  
 Val Ser Ala Gly Asn Lys Arg Lys His Ala Ala Ala Gln Leu Tyr Ser  
 210 215 220  
 Pro Pro Pro Ser Pro Ser Gly Val Ile Gly Ala Leu Ser Cys Phe Ser  
 225 230 235 240  
 Cys Glu Ser Ser Thr Ser Ala Thr Ala Met Ala Ala Ala Val Gly Pro  
 245 250 255  
 Trp Ala Pro Ser Ala Ser Val Ser Val Ser Ser Ser Pro Glu Pro Pro  
 260 265 270  
 Gly Arg Ala Pro Lys Arg Ala Ala Ala Ala Ser Ala Ser Ala  
 275 280 285

Ser Ala Gly Val Ala Pro Pro Val Gln Val Pro His Gln Leu Pro Pro  
 290 295 300

Asp Glu Glu Ser Arg Asp Ala Trp Pro Ser Thr Cys Ala Ala  
 305 310 315

<210> 25  
 <211> 674  
 <212> DNA  
 <213> Glycine max

<220>  
 <221> unsure  
 <222> (527)

<220>  
 <221> unsure  
 <222> (561)

<220>  
 <221> unsure  
 <222> (640)

<220>  
 <221> unsure  
 <222> (643)

<400> 25  
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 tccttctcca tcggggcatt ccgcactctc catcccataa aagtcccaga tccaagatgg 120  
 cttaccacca tcaaaaatcc cttttggaca ccctatactg ctccgaagag cattggatag 180  
 gggaaggtga atttgaccaa gcagaggagg agtacggtaa cagtaatagc aatagtagca 240  
 gcaccttagt aaacaactcc cctgagtcct cccctcattt gttgctcgaa agcgacatgt 300  
 tttgggacga acaagagttg gcacgcgtgt tggagaaaga acaacacaac ccactaagca 360  
 cttgctgtct ccaaagcaac cctgccttgg aggggtgctcg catagaagcc gtggagtggg 420  
 ttctcaaagt aaacgcccac tactccttct ctgccctcac cgctgttctt gctgtcaact 480  
 actttgaccg ttttctcttc agcttccgct ttcagaatga cattaancca tggatgactc 540  
 ggggtcgctg ccgtcgcttg nctctccctc gctgccaaag tgggcgagac acacgttccc 600  
 tttcttattt gacccttcaa caaagtggga ggaggagtan atnctttgtt ccaagccaaa 660  
 gacgattaaa aaag 674

<210> 26  
 <211> 186  
 <212> PRT  
 <213> Glycine max

<220>  
 <221> UNSURE  
 <222> (137)

<220>  
 <221> UNSURE  
 <222> (149)

<220>  
 <221> UNSURE  
 <222> (175)..(176)

<400> 26  
 Met Ala Tyr His His Gln Lys Ser Leu Leu Asp Thr Leu Tyr Cys Ser  
 1 5 10 15

Glu Glu His Trp Ile Gly Glu Gly Glu Phe Asp Gln Ala Glu Glu Glu  
 20 25 30

Tyr Gly Asn Ser Asn Ser Asn Ser Ser Ser Thr Leu Val Asn Asn Ser  
 35 40 45  
 Pro Glu Ser Ser Pro His Leu Leu Leu Glu Ser Asp Met Phe Trp Asp  
 50 55 60  
 Glu Gln Glu Leu Ala Ser Leu Leu Glu Lys Glu Gln His Asn Pro Leu  
 65 70 75 80  
 Ser Thr Cys Cys Leu Gln Ser Asn Pro Ala Leu Glu Gly Ala Arg Ile  
 85 90 95  
 Glu Ala Val Glu Trp Ile Leu Lys Val Asn Ala His Tyr Ser Phe Ser  
 100 105 110  
 Ala Leu Thr Ala Val Leu Ala Val Asn Tyr Phe Asp Arg Phe Leu Phe  
 115 120 125  
 Ser Phe Arg Phe Gln Asn Asp Ile Xaa Pro Trp Met Thr Arg Gly Arg  
 130 135 140  
 Cys Arg Arg Leu Xaa Leu Pro Arg Cys Gln Ser Gly Arg Asp Thr Arg  
 145 150 155 160

Ser Leu Ser Tyr Leu Thr Leu Gln Gln Ser Gly Arg Arg Ser Xaa Xaa  
 165 170 175

Phe Val Pro Ser Gln Arg Arg Leu Lys Lys  
 180 185

<210> 27  
 <211> 554  
 <212> DNA  
 <213> Glycine max

<400> 27  
 ctccctttca cctttcttca tagcctacca cttttctgct ttcattctact ctcaacttctc 60  
 ttcacacact gagacacaca gagagagaaa aataaagggt gtgatgggtg tcttactgag 120  
 tgtttttcttt ttataatgaa caaagaactg cacaccctct tcttcaccga agaagaagat 180  
 ggcaattcag caccacaatg accaactaga gcataatgaa aatgtctcat ctgtccttga 240  
 tgccctttac tgtgacgaag gaaagtggga agaggaagag gaggagaaag aagaagaaga 300  
 agatgaagggt gaaaatgaaa gtgaagtgaac aacaaacact gcaacttgtc ttttcctct 360  
 gctcttggtg gagcaagact tgttctggga agatgaggaa ctaaactcta tcttttccaa 420  
 agagaagggt caacatgaag aagcctatgg tataacaatc tgaacagtga tgtgtataac 480  
 aacaacaaca atactagtat ataatgtgat ttggctcttg ctcttcagct cgtcggagcg 540  
 tgatgatgct gaat 554

<210> 28  
 <211> 94  
 <212> PRT  
 <213> Glycine max

<400> 28  
 Met Ala Ile Gln His His Asn Asp Gln Leu Glu His Asn Glu Asn Val  
 1 5 10 15  
 Ser Ser Val Leu Asp Ala Leu Tyr Cys Asp Glu Gly Lys Trp Glu Glu  
 20 25 30  
 Glu Glu Glu Glu Lys Glu Glu Glu Glu Asp Glu Gly Glu Asn Glu Ser  
 35 40 45  
 Glu Val Thr Thr Asn Thr Ala Thr Cys Leu Phe Pro Leu Leu Leu Leu  
 50 55 60

Glu Gln Asp Leu Phe Trp Glu Asp Glu Glu Leu Asn Ser Ile Phe Ser  
65 70 75 80

Lys Glu Lys Val Gln His Glu Glu Ala Tyr Gly Ile Thr Ile  
85 90

<210> 29  
<211> 372  
<212> PRT  
<213> Catharanthus roseus

<400> 29

Met Ala Asp Lys Glu Asn Cys Ile Arg Val Thr Arg Leu Ala Lys Lys  
1 5 10 15

Arg Ala Val Glu Ala Met Ala Ala Ser Glu Gln Gln Arg Pro Ser Lys  
20 25 30

Lys Arg Val Val Leu Gly Glu Leu Lys Asn Leu Ser Ser Asn Ile Ser  
35 40 45

Ser Ile Gln Thr Tyr Asp Phe Ser Ser Gly Pro Gln Lys Gln Gln Lys  
50 55 60

Asn Lys Asn Lys Arg Lys Ala Lys Glu Ser Leu Gly Phe Glu Val Lys  
65 70 75 80

Glu Lys Lys Val Glu Glu Ala Gly Ile Asp Val Phe Ser Gln Ser Asp  
85 90 95

Asp Pro Gln Met Cys Gly Ala Tyr Val Ser Asp Ile Tyr Glu Tyr Leu  
100 105 110

His Lys Met Glu Met Glu Thr Lys Arg Arg Pro Leu Pro Asp Tyr Leu  
115 120 125

Asp Lys Val Gln Lys Asp Val Thr Ala Asn Met Arg Gly Val Leu Ile  
130 135 140

Asp Trp Leu Val Glu Val Ala Glu Glu Tyr Lys Leu Leu Pro Asp Thr  
145 150 155 160

Leu Tyr Leu Thr Val Ser Tyr Ile Asp Arg Phe Leu Ser Met Asn Ala  
165 170 175

Leu Ser Arg Gln Lys Leu Gln Leu Leu Gly Val Ser Ser Met Leu Ile  
180 185 190

Ala Ser Lys Tyr Glu Glu Ile Ser Pro Pro His Val Glu Asp Phe Cys  
195 200 205

Tyr Ile Thr Asp Asn Thr Tyr Lys Lys Glu Glu Val Val Lys Met Glu  
210 215 220

Ala Asp Val Leu Lys Phe Leu Lys Phe Glu Met Gly Asn Pro Thr Ile  
225 230 235 240

Lys Thr Phe Leu Arg Arg Leu Thr Arg Val Val Gln Asp Gly Asp Lys  
245 250 255

Asn Pro Asn Leu Gln Phe Glu Phe Leu Gly Tyr Tyr Leu Ala Glu Leu  
260 265 270

Ser Leu Leu Asp Tyr Gly Cys Val Lys Phe Leu Pro Ser Leu Ile Ala  
275 280 285

Ser Ser Val Ile Phe Leu Ser Arg Phe Thr Leu Gln Pro Lys Val His  
 290 295 300

Pro Trp Asn Ser Leu Leu Gln His Asn Ser Gly Tyr Lys Pro Ala Asp  
 305 310 315 320

Leu Lys Glu Cys Val Leu Ile Ile His Asp Leu Gln Leu Ser Lys Arg  
 325 330 335

Gly Ser Ser Leu Val Ala Val Arg Asp Lys Tyr Lys Gln His Lys Phe  
 340 345 350

Lys Cys Val Ser Thr Leu Thr Ala Pro Pro Ser Ile Pro Asp Glu Phe  
 355 360 365

Phe Glu Asp Ile  
 370

<210> 30  
 <211> 335  
 <212> PRT  
 <213> Arabidopsis thaliana

<400> 30  
 Met Arg Ser Tyr Arg Phe Ser Asp Tyr Leu His Met Ser Val Ser Phe  
 1 5 10 15

Ser Asn Asp Met Asp Leu Phe Cys Gly Glu Asp Ser Gly Val Phe Ser  
 20 25 30

Gly Glu Ser Thr Val Asp Phe Ser Ser Ser Glu Val Asp Ser Trp Pro  
 35 40 45

Gly Asp Ser Ile Ala Cys Phe Ile Glu Asp Glu Arg His Phe Val Pro  
 50 55 60

Gly His Asp Tyr Leu Ser Arg Phe Gln Thr Arg Ser Leu Asp Ala Ser  
 65 70 75 80

Ala Arg Glu Asp Ser Val Ala Trp Ile Leu Lys Val Gln Ala Tyr Tyr  
 85 90 95

Asn Phe Gln Pro Leu Thr Ala Tyr Leu Ala Val Asn Tyr Met Asp Arg  
 100 105 110

Phe Leu Tyr Ala Arg Arg Leu Pro Glu Thr Ser Gly Trp Pro Met Gln  
 115 120 125

Leu Leu Ala Val Ala Cys Leu Ser Leu Ala Ala Lys Met Glu Glu Ile  
 130 135 140

Leu Val Pro Ser Leu Phe Asp Phe Gln Val Ala Gly Val Lys Tyr Leu  
 145 150 155 160

Phe Glu Ala Lys Thr Ile Lys Arg Met Glu Leu Leu Val Leu Ser Val  
 165 170 175

Leu Asp Trp Arg Leu Arg Ser Val Thr Pro Phe Asp Phe Ile Ser Phe  
 180 185 190

Phe Ala Tyr Lys Ile Asp Pro Ser Gly Thr Phe Leu Gly Phe Phe Ile  
 195 200 205

Ser His Ala Thr Glu Ile Ile Leu Ser Asn Ile Lys Glu Ala Ser Phe  
 210 215 220

Leu Glu Tyr Trp Pro Ser Ser Ile Ala Ala Ala Ala Ile Leu Cys Val  
 225 230 235 240  
 Ala Asn Glu Leu Pro Ser Leu Ser Ser Val Val Asn Pro His Glu Ser  
 245 250 255  
 Pro Glu Thr Trp Cys Asp Gly Leu Ser Lys Glu Lys Ile Val Arg Cys  
 260 265 270  
 Tyr Arg Leu Met Lys Ala Met Ala Ile Glu Asn Asn Arg Leu Asn Thr  
 275 280 285  
 Pro Lys Val Ile Ala Lys Leu Arg Val Ser Val Arg Ala Ser Ser Thr  
 290 295 300  
 Leu Thr Arg Pro Ser Asp Glu Ser Ser Ser Pro Cys Lys Arg Arg Lys  
 305 310 315 320  
 Leu Ser Gly Tyr Ser Trp Val Gly Asp Glu Thr Ser Thr Ser Asn  
 325 330 335

<210> 31  
 <211> 354  
 <212> PRT  
 <213> Nicotiana tabacum

<400> 31  
 Met Ala Ala Asp Asn Ile Tyr Asp Phe Val Ala Ser Asn Leu Leu Cys  
 1 5 10 15  
 Thr Glu Thr Lys Ser Leu Cys Phe Asp Asp Val Asp Ser Leu Thr Ile  
 20 25 30  
 Ser Gln Gln Asn Ile Glu Thr Lys Ser Lys Asp Leu Ser Phe Asn Asn  
 35 40 45  
 Gly Ile Arg Ser Glu Pro Leu Ile Asp Leu Pro Ser Leu Ser Glu Glu  
 50 55 60  
 Cys Leu Ser Phe Met Val Gln Arg Glu Met Glu Phe Leu Pro Lys Asp  
 65 70 75 80  
 Asp Tyr Val Glu Arg Leu Arg Ser Gly Asp Leu Asp Leu Ser Val Arg  
 85 90 95  
 Lys Glu Ala Leu Asp Trp Ile Leu Lys Ala His Met His Tyr Gly Phe  
 100 105 110  
 Gly Glu Leu Ser Phe Cys Leu Ser Ile Asn Tyr Leu Asp Arg Phe Leu  
 115 120 125  
 Ser Leu Tyr Glu Leu Pro Arg Ser Lys Thr Trp Thr Val Gln Leu Leu  
 130 135 140  
 Ala Val Ala Cys Leu Ser Leu Ala Ala Lys Met Glu Glu Ile Asn Val  
 145 150 155 160  
 Pro Leu Thr Val Asp Leu Gln Val Gly Asp Pro Lys Phe Val Phe Glu  
 165 170 175  
 Gly Lys Thr Ile Gln Arg Met Glu Leu Leu Val Leu Ser Thr Leu Lys  
 180 185 190  
 Trp Arg Met Gln Ala Tyr Thr Pro Tyr Thr Phe Ile Asp Tyr Phe Met  
 195 200 205



Arg Lys Met Asn Gly Asp Gln Ile Pro Ser Arg Pro Leu Ile Ser Gly  
 210 215 220  
 Ser Met Gln Leu Ile Leu Ser Ile Ile Arg Ser Ile Asp Phe Leu Glu  
 225 230 235 240  
 Phe Arg Ser Ser Glu Ile Ala Ala Ser Val Ala Met Ser Val Ser Gly  
 245 250 255  
 Glu Ile Gln Ala Lys Asp Ile Asp Lys Ala Met Pro Cys Phe Phe Ile  
 260 265 270  
 His Leu Asp Lys Gly Arg Val Gln Lys Cys Val Glu Leu Ile Gln Asp  
 275 280 285  
 Leu Thr Thr Ala Thr Ile Thr Thr Ala Ala Ala Ala Ser Leu Val Pro  
 290 295 300  
 Gln Ser Pro Ile Gly Val Leu Glu Ala Ala Ala Cys Leu Ser Tyr Lys  
 305 310 315 320  
 Ser Gly Asp Glu Arg Thr Val Gly Ser Cys Thr Thr Ser Ser His Thr  
 325 330 335

Lys Arg Arg Lys Leu Asp Thr Ser Ser Leu Glu His Gly Thr Ser Glu  
 340 345 350

Lys Leu

<210> 32  
 <211> 373  
 <212> PRT  
 <213> Nicotiana tabacum

<400> 32  
 Met Ala Ile Glu His Asn Glu Gln Gln Glu Leu Ser Gln Ser Phe Leu  
 1 5 10 15  
 Leu Asp Ala Leu Tyr Cys Glu Glu Glu Glu Glu Lys Trp Gly Asp Leu  
 20 25 30  
 Val Asp Asp Glu Thr Ile Ile Thr Pro Leu Ser Ser Glu Val Thr Thr  
 35 40 45  
 Thr Thr Thr Thr Thr Thr Lys Pro Asn Ser Leu Leu Pro Leu Leu Leu  
 50 55 60  
 Leu Glu Gln Asp Leu Phe Trp Glu Asp Glu Glu Leu Leu Ser Leu Phe  
 65 70 75 80  
 Ser Lys Glu Lys Glu Thr His Cys Trp Phe Asn Ser Phe Gln Asp Asp  
 85 90 95  
 Ser Leu Leu Cys Ser Ala Arg Val Asp Ser Val Glu Trp Ile Leu Lys  
 100 105 110  
 Val Asn Gly Tyr Tyr Gly Phe Ser Ala Leu Thr Ala Val Leu Ala Ile  
 115 120 125  
 Asn Tyr Phe Asp Arg Phe Leu Thr Ser Leu His Tyr Gln Lys Asp Lys  
 130 135 140  
 Pro Trp Met Ile Gln Leu Ala Ala Val Thr Cys Leu Ser Leu Ala Ala  
 145 150 155 160

Lys Val Glu Glu Thr Gln Val Pro Leu Leu Leu Asp Phe Gln Val Glu  
 165 170 175  
 Asp Ala Lys Tyr Val Phe Glu Ala Lys Thr Ile Gln Arg Met Glu Leu  
 180 185 190  
 Leu Val Leu Ser Ser Leu Lys Trp Arg Met Asn Pro Val Thr Pro Leu  
 195 200 205  
 Ser Phe Leu Asp His Ile Ile Arg Arg Leu Gly Leu Arg Asn Asn Ile  
 210 215 220  
 His Trp Glu Phe Leu Arg Arg Cys Glu Asn Leu Leu Leu Ser Ile Met  
 225 230 235 240  
 Ala Asp Cys Arg Phe Val Arg Tyr Met Pro Ser Val Leu Ala Thr Ala  
 245 250 255  
 Ile Met Leu His Val Ile His Gln Val Glu Pro Cys Asn Ser Val Asp  
 260 265 270  
 Tyr Gln Asn Gln Leu Leu Gly Val Leu Lys Ile Asn Lys Glu Lys Val  
 275 280 285

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Asn Asn Cys Phe Glu Leu Ile Ser Glu Val Cys Ser Lys Pro Ile Ser  
 290 295 300  
 His Lys Arg Lys Tyr Glu Asn Pro Ser His Ser Pro Ser Gly Val Ile  
 305 310 315 320  
 Asp Pro Ile Tyr Ser Ser Glu Ser Ser Asn Asp Ser Trp Asp Leu Glu  
 325 330 335  
 Ser Thr Ser Ser Tyr Phe Pro Val Phe Lys Lys Ser Arg Val Gln Glu  
 340 345 350  
 Gln Gln Met Lys Leu Ala Ser Ser Ile Ser Arg Val Phe Val Glu Ala  
 355 360 365  
 Val Gly Ser Pro His  
 370